

REMARKS

Applicants have considered the outstanding official action. It is respectfully submitted that the claims are directed to patentable subject matter as set forth below.

In view of the duty of disclosure, applicants are submitting herewith (1) Form PTO/SB/08A setting forth prior art, (2) the submission fee of \$180 for submission and consideration of an information disclosure statement subsequent to a first action but prior to a notice of allowance, and (3) copies of the foreign publications with attached English translation.

It is noted that Japan Application No. 2000-351526 and Japan Application No. 02-52874 were cited in a Japanese application corresponding to the captioned application. The other listed documents were cited in co-owned co-pending application Serial No. 10/588,010 filed August 1, 2006. U.S. Patent No. 5,000,729 is noted as including the disclosure of a vacuum source in a plastic web folding device.

U.S. Patent No. 5,000,729 and Japanese Publication No. 02-52874 are not pertinent to the claimed folding machine since they each are directed to a different kind of machine and also, in particular, since the folding of bags

as processed by the machines described in these publications is obtained by a mechanical member 13 (see for example Fig. 13 in the Japanese Publication) which pushes the bag into a gripper 12. The suction duct 17 only has the purpose of retaining the bag once the bag has been mechanically folded and gripped.

Japanese Publication 2000-351526 is similar to the above-mentioned Japanese Publication, but does not teach or suggest using a vacuum or suction to generate a fold and introduce a web into a mechanical gripping member as claimed in the captioned application.

Acknowledgment of consideration of the attached published patent applications is requested.

The sole outstanding rejection is of claims 1-25 under 35 U.S.C. §103(a) over U.S. Patent No. 3,229,974 (Banks) in view of U.S. Patent No. 4,521,209 (DuFresne).

Independent claim 1 is directed to a folding machine to fold a web material along transverse folding lines including at least one folding roller provided with at least one mechanical gripping member to mechanically grasp the web material along a folding line and a gaseous flow member associated with the at least one gripping member. The gaseous flow member is constructed and arranged to generate a gaseous flow which inserts the web material into the at least one mechanical gripping member. The mechanical

gripping member is constructed and arranged to grasp the web material inserted therein by the gaseous flow.

Additionally, claims 24 and 25 have been placed in independent form. Each of independent claims 1, 24 and 25 and claims dependent thereon, are submitted to be patentable over Banks and DuFresne as set forth below.

The Examiner acknowledges that Banks fails to disclose a gaseous flow member which generates a gaseous flow to introduce a web material into a gripping member. The Examiner then relies on DuFresne as teaching a gaseous flow member to fold the web asserting that DuFresne discloses a folding machine similar to that in Banks and teaches the use of vacuum ports 36 and 34, as shown in Fig. 1 thereof, around the surface of the rollers to fold a web. From these considerations, the Examiner concludes that applicants' claim 1 is obvious in view of the combination of the two applied references. Applicants respectfully submit that the teachings of DuFresne are not being viewed in their entirety and that hindsight is relied on to provide the asserted combination in view of the lack of relevant teaching in Banks and DuFresne which would motivate one skilled in the art to modify the teachings of Banks or DuFresne to obtain applicants' claimed invention.

Specifically, applicants' claimed machine does not use vacuum to fold a web, but rather uses vacuum (or, as an

alternative, blowing) to introduce a web into a mechanical gripper. The mechanical gripper is the actual member, which generates the fold, i.e., which folds the web. This is distinct from DuFresne as emphasized by the advantages obtained with the claimed machine.

Applicants respectfully submit that, assuming one skilled in the art were to combine an isolated component of DuFresne to the machine of Banks as asserted by the Examiner, at most such combination would simply lead to the removal of the mechanical gripper 34 in the machine disclosed in Banks and replacement thereof with suction on the surface of folding rollers 27 and 28. However, the machine as claimed in the captioned application is something entirely different in structure and function. The invention as claimed is not simply the replacement of mechanical grippers with a suction folder device but rather, is a combination of a mechanical gripper and suction (or blowing) for the purpose of avoiding mechanical contact and wear against the mechanical gripper. The folding action of the claimed machine is performed in a mechanical way. Applicants claimed machine, however, differs from the applied art in that a web is introduced into the mechanical gripping member by means of an air flow, rather than mechanically. This is not taught or suggested by either Banks or DuFresne.

DuFresne does not teach inserting a web into a mechanical gripper by a vacuum. DuFresne only teaches retention of a web on an outer cylindrical surface of a folding roller by means of suction using suction holes 36 and 37. The claimed machine of the captioned application is conceptually different and solves a different problem which is not recognized or solved by Banks and/or DuFresne.

The claimed apparatus is structured to provide a gas flow to introduce a web into a mechanical gripping member, the mechanical gripping member then serves to grasp, fold and retain the web during folding. Applicants' machine solves the problems of mechanical wear, noise and vibrations caused by a conventional apparatus, such as Banks, wherein a mechanical blade (35 or 38) which, while cooperating with the gripper (34 or 37), pushes a web into the gripper and remains in the gripper as long as the gripper is closed. This means that the gripper clashes against the blade causing noise, vibration and wear of the mechanical elements.

The machine disclosed in Banks has a further drawback, in that a need for very precise phasing or synchronization between the motion of the folding rollers 27, 28 and of the mechanical grippers 34, 37. This is required since the web must be pushed into the gripper while the gripper is open by means of the blade of the opposing

roller. The gripper must then be closed before the blade is clear of the gripper. This requires very fast and precise operation. If the blade exits the gripper before the gripper is closed, the web will not be folded and control over the web will be lost.

Conversely, applicants' claimed machine includes a gaseous flow member which generates an air flow to suck or blow the web into a gripping member which makes the phasing or synchronization of the gripping member with the other member much less critical. Indeed, suction or blowing can be maintained for a longer time, i.e., for a larger angle of rotation of the corresponding folding roller. The gripping member has more time to close and retain the web. The retention action of the gaseous flow is not determined by the physical position of the two winding rollers and leads to a much longer interval of time during which mechanical gripping of the web can be completed.

In Banks, the gripper must be closed before the blade exits the gripper and the position of the blade and of the gripper is determined by the angular position of the two folding rollers. In contradistinction, the effect of the gaseous flow member of the claimed machine allows a certain degree of independent adjustment with respect to the motion of the mechanical gripping member. This results in a smooth and fast operation without a critical need for a very

precise mechanical adjustment of various mechanical members. Thus, higher production rates can be achieved with applicants' claimed machine without incurring the difficulties in adjustment and synchronizing of the phases of the machine and without the machine becoming too noisy.

The above advantages are not taught or suggested by either Banks or DuFresne as resulting from a gaseous flow member in combination with a mechanical gripping member. Such combination also is not obvious from Banks and DuFresne since DuFresne does not teach or suggest using an airflow to introduce a web into a mechanical retention member. DuFresne only teaches the use of vacuum to retain the folding line of a web on an outer surface of a folding roller. This has very significant limitations in use. Only limited speeds can be achieved since too high of a speed in operation risks loss of control over the web. In addition, the folding line is not precise and only very soft and pliable webs can be handled by the machine described in DuFresne. This is due to the fact that the vacuum as taught by DuFresne is used simply to retain the web and cause the web to fold along the folding line.

Applicants' claimed machine has a different combined structure and function over the machines of the applied art. Applicants' invention is based on a different concept, namely, to maintain mechanical retention of a web

and the advantages thereof, i.e., safe control over the web and high speed, while using a flow of air to introduce the web into the gripping member, rather than a mechanical member, thereby solving problems created by the traditional blade/gripper arrangement as taught in Banks.

Accordingly, the applied combination of Banks and DuFresne does not render obvious the invention as claimed within the meaning of 35 U.S.C. §103. Withdrawal of the §103 rejection is, therefore, requested.

Additionally, applicants have placed dependent claims 24 and 25 in independent form. Claims 24 and 25 exemplify preferred embodiments including a projection on the counter-roller, such as shown in Figures 15A and 15B. Claim 24 is rejected by the Examiner on the basis that Banks discloses projections 38 which introduces the web into the gripping member 34. The projection or blade 38, provided on roller 28, however, co-acts with the gripping member 34 on roller 27 in order to push the web into the gripping member, which closes before the blade or projection 38 exits the gripping member itself. As set forth above, however, this is simply a conventional solution to the problem of mechanically folding and gripping a web.

If air is used instead to introduce the web into the gripping member as claimed in claim 1, there is no reason why using a projection on the counter roller would be

obvious. Additionally, the function and operation of the projection 38 of Banks is quite different than that of the projection 201, 201 A (Figs. 15A-15B) as described in the captioned application. In Banks, the blade or projection 38 is the very element which pushes the web into contact with the gripper 34 of the opposing roller 27. The gripper then closes and the projection 38 is moved out of the gripper subsequently.

Conversely, in the claimed machine of claims 24 and 25, the projection 201, 201A only has the purpose of slightly lifting the web from the cylindrical surface of roller 1, such that the flow of air through the holes 63E is made easier. Further, unlike the applied art, the gripping member 61 does not grip the projection 201A when it closes to retain a web. The rotation of the roller 1 and counter roller 3 is such that the projection 201A is clear of the gripping member 61 before the gripping member is closed.

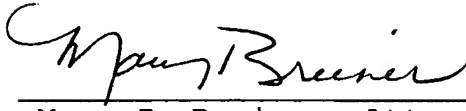
Thus, neither Banks nor DuFresne suggests any motivation to modify the teachings of Banks or DuFresne in order to provide the invention as claimed. Accordingly, applicants respectfully submit that Banks in combination with DuFresne does not render the folding machine of claims 24 and 25 obvious within the meaning of 35 U.S.C. §103.

Reconsideration and allowance of the application are respectfully urged.

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Group Art Unit 3721

Respectfully submitted,

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Attachment - Form PTO/SB/08A w/2 Documents